

1. A method of providing multiple voltage outputs,
comprising:

receiving an input signal from a multifunctional
pump;

5 sending a first output signal based on the input
signal using a first switch; and

sending a second output signal based on the input
signal using a second switch and a transistor.

10 2. The method of claim 1, wherein the first output
signal is a square waveform, the second output signal is a
constant voltage, and the first output signal is different
from the second output signal.

15 3. The method of claim 2, wherein the first output
signal has a maximum voltage of 7 volts and a minimum voltage
of 5 volts and the second output signal is 5 volts.

20 4. The method of claim 1, further comprising comparing a
reference voltage and a feedback voltage using a comparator,
the comparator being connected to the transistor.

5. The method of claim 1, wherein the multifunctional pump is a circuit comprising:

a first array;

a second array in parallel to the first array;

5 a third array in parallel to the second array;

a fourth array in parallel to the third array; and

a fifth array in parallel to the fourth array.

10 6. The method of claim 5, wherein the multifunctional pump further comprising:

an oscillator providing a clock signal to each of the arrays; and

15 a comparator providing input to the oscillator, the comparator comparing the output from the arrays with a predetermined voltage.

7. The method of claim 6, wherein the multifunctional pump is in standby mode when the first array is enabled by a first signal, wherein the multifunctional pump is in read mode
20 when the second array is enabled by a second signal and the first array is on, and wherein the pump is in a program/erase mode when the third array, the fourth array, and the fifth

array are enabled by a third signal and the first array and the second array are on.

8. The method of claim 1, wherein the multifunctional
5 pump is a read pump.

9. The method of claim 7, wherein the multifunctional
pump is a standby mode pump.

10. The method of claim 8, wherein the multifunctional
pump is a program/erase pump.

11. An apparatus for providing multiple voltages,
comprising:

15 a multifunctional pump;
a first switch receiving input from the
multifunctional pump and providing a first output signal;
a transistor receiving input from the
multifunctional pump; and
20 a second switch providing a second output signal.

12. The apparatus of claim 11, wherein the first output
signal is a square waveform, the second output signal is a

constant voltage, and the first output signal is different from the second output signal.

13. The apparatus of claim 12, wherein the first output
5 signal has a maximum voltage of 7 volts and a minimum voltage of 5 volts and the second output signal is 5 volts.

14. The apparatus of claim 11, further comprising a
comparator connected to a gate of the transistor, the
10 comparator comparing a reference voltage and a feedback
voltage.

15. The apparatus of claim 11, wherein the
multifunctional pump comprises:

15 a first array;
a second array in parallel to the first array;
a third array in parallel to the second array;
a fourth array in parallel to the third array; and
a fifth array in parallel to the fourth array.

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16. The apparatus of claim 15, wherein the
multifunctional pump further comprises:

an oscillator providing a clock signal to each of
the arrays; and

a comparator providing input to the oscillator, the
comparator comparing the output from the arrays with a
5 predetermined voltage.

17. The apparatus of claim 16, wherein the
multifunctional pump is in standby mode when the first array
is enabled by a first signal, wherein the multifunctional pump
10 is in read mode when the second array is enabled by a second
signal and the first array is on, and wherein the pump is in a
program/erase mode when the third array, the fourth array, and
the fifth array are enabled by a third signal and the first
array and the second array are on.

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18. The apparatus of claim 11, wherein the
multifunctional pump signal has the functions of a read pump.

19. The apparatus of claim 18, wherein the
20 multifunctional pump signal has the functions of a standby
pump.

20. The apparatus of claim 19, wherein the multifunctional pump signal has the functions of a program/erase pump.